EXTENSION PAMPHLET 146 3 REVISED JUNE 1948

Vegetable Plant Growing Reminders

By

LEON C. SNYDER
and
RAYMOND C. ROSE

UNIVERSITY OF MINNESOTA
Agricultural Extension Service
U. S. DEPARTMENT OF AGRICULTURE

VEGETABLE PLANT GROWING REMINDERS

General Instructions

Soils for Starting Plants. The soil used for starting seeds should be loose and friable so that the seedlings can be removed without breaking the roots. A suitable mixture can be prepared by mixing one part of peat moss or other organic material, one part of sand, and two parts of a good garden loam. Transplant the seedlings into a good garden soil that contains sufficient organic matter and sand to prevent baking. A good mixture is two parts of garden soil, one part of well-rotted manure, and one part of sand. Avoid using soil that has been used before for starting plants. If paper or veneer bands are to be used, mix one ounce of ammonium sulfate with each bushel of the soil mixture. The reason for this is that as the bands break down they remove nitrogen from the soil, and the plants will turn yellow unless nitrogen is added to the soil mixture.

Hardening and Holding Plants. Plants may be hardened by withholding water or by placing the plants in the cold frame for a week or longer before field planting. Avoid overhardening tomato plants as a severe check in the growth of tomatoes at any stage of their development will lower early yields. Cabbage and related plants can be made more resistant to frost damage by the hardening process, but tomatoes cannot be made frost resistant by any amount of hardening.

It is not advisable to hold the plants for long periods after they are ready to go to the field. If adverse weather prevents field planting, hold at a cool temperature and withhold water. Don't plant your seeds too early or plant too much at one time. It is better to make succession plantings to have plants of the proper age available throughout the field planting period.

Seed Rot and Damping-Off Diseases. Plants started indoors in old garden soils are often attacked by fungi that destroy the seed or the very young plants. Destruction of seed or plants may start in spots and later spread over the entire bed causing complete loss of plants. Losses are most severe when propagating beds are kept moist and are exposed to poor sunlight. Since these losses generally start from the use of contaminated soil, successful plant propagation depends on use of disease free soil or disinfected old soil.

A simple method of sterilizing small amounts of soil for window boxes is to bake it in an oven at 150° F. to 160° F. for ½ hour. If this cannot be done, good control can be had by adding Semesan to the water that is applied to the plant beds. Add a level teaspoon of Semesan to 1⅓ quarts of water, or one level tablespoon to a gallon of water. Sprinkle on plants at the rate of 1⅓ quarts to 9 sq. ft. of plant bed of medium or heavy soil, or 1 quart to 10 sq. ft. of sandy soil.

Copper oxide treatment is safe on most crops except cabbage, cauliflower, and related crops. Dust or sprinkle plants at the rate of 1 ounce or 3 or 4 level teaspoons on 30 square feet of flats or bed soil. Before sprinkling a water suspension, test a small amount of the powder to see if it will mix with water. If it mixes, make a suspension, keep it stirred, and sprinkle it on. If it does not mix, sift or dust it on, and then sprinkle the plants with water.

When to apply. Make the first application just after seeding and a second application 10 to 14 days later. For peppers a third application should be made 10 days after the second.

Seed Treatment. Treating seed with Arasan for indoor or outdoor planting will prevent seed decay but will not prevent damping-off of seedlings. For outdoor seeding, seed treatment alone may be sufficient. For a 10 cent package of seed the amount of Arasan that can be lifted on the first quarter of an inch of the flat end of a toothpick is all that is needed. Arasan dust can be purchased in small envelopes for home gardeners. Drop the dust into the seed packet and shake till seed is evenly dust-coated. If Arasan is not available, Semesan can be used on most vegetables in the same manner. See directions on containers. Commercial vegetable growers interested in treating seed can get a copy of the vegetable seed treating chart from the local County Agent or from the Agricultural Extension Service, University Farm, St. Paul 1, Minnesota.

Suggested varieties	No. of plants to expect per oz. of seed	Time needed to grow plants	Proper temperature	Spacing or size of container	Seed treatment for disease control§	Approximate field planting date
TOMATOES *Early*—Chatham, Firesteel, Bounty, Victor, Faribo E Hybrid *Midseason*—Stokesdale, John Baer, Pritchard, Fordhook Hybrid, Mingold (yellow) *Late*—Rutgers, Marglobe, Jubilee (orange) (Avoid late varieties in northern Minnesota)	4,000	2 to 3 weeks from seeding to pricking off; 3 to 4 weeks more in flat or other containers.	Germinate seed in a warm soil between 70° and 80° F.; grow at a day temperature of about 75° F. and a night temperature of about 60° F.	Space in the flat at 2″ x 2″ or 3″ x 3″ intervals or grow in 3″ to 4″ pots or bands.	Soak 5 min. in solution of New Improved Ceresan, 1 oz. (6¾ tsp.) in 9 gal. water. Drain and dry without rinsing.	After all danger of frost. In southern Minnesota May 20 to June 1; in northern Minnesota about June 10.
PEPPERS *Early*—Harris Earliest, Sunnybrook *Midseason*—World Beater, California Wonder (Plant only early varieties in northern Minnesota)	1,500	3 to 4 weeks from seeding to pricking off; 4 to 5 weeks more in flat or other containers.			Soak 5 min. in mercuric chloride, 1 tablet in 3 pints water. Rinse 15 min. and dry. Dust with Arasan, 1 tsp. per lb.	
EGGPLANT *Early*—New Hampshire Hybrid, Minoval *Late*—Black Beauty, New York Improved Spineless (Plant only early varieties in northern Minnesota)	2,500				Soak 30 minutes in hot water at 122° F. Dry and then dust with Arasan, ½ level teaspoon per pound.	
MUSKMELON *Early*—Far North, Golden Champlain, Golden Osage, Sunrise *Midseason*—Sugar Rock, Pride of Wisconsin Iroquois, Hales Best (Plant only early varieties in northern Minnesota)	500	About 3 weeks from seed sowing to field setting.	Germinate in warm soil 75° to 80° F. (seeds will rot in cold soil). Grow at day temperatures of 70° to 80° F. and night temperatures of 60° to 70° F.	Grow in 4″ pots or bands, 2 to 3 plants in each container. (Do not disturb roots when transplanting to field.)	Soak 5 minutes in mercuric chloride, 1 tablet in 1 pint water or 1 ounce in 7½ gallons, for 15 minutes. Use one gallon for each pound of seed. Dry and then dust with Arasan, 1 teaspoon per pound of seed.	After the soil has warmed up in the spring; about June 1 in the southern and June 10 in the northern parts of the state.
WATERMELON *Early*—Early Canada, Sweet Sensation, Northern Sweet, New Hampshire Midget *Midseason*—Early Kansas, Improved Kleckley Sweet, Winter Melon (Plant only early varieties in northern Minnesota)	250					
CUCUMBER (slicing) Burpee Hybrid, Straight-8, A and C, Black Diamond	500					
HEAD LETTUCE Cosberg, New York 515, Imperial 44, Great Lakes	10,000				Dust seed with Semesan or Spergon, ¼ teaspoon per pound of seed.	About April 15 in the southern and May 1 to 15 in the northern parts of the state
CABBAGE* *Early*—Golden Acre, Copenhagen Market, Early Jersey Wakefield *Late*—Late Copenhagen, All Seasons, Short Stem Hollander (Ferry), Flat Dutch (for sauerkraut), Danish Bullhead	5,000	2 to 3 weeks from seeding to pricking off; 3 to 4 weeks more in the flat.	Germinate seed at 60° to 70° F. Grow at day temperatures of 55° to 65° F. and night temperatures of 50° to 60° F.	Space in the flat or bed at 2″ x 2″ intervals.	Soak 25 minutes in hot water at 122° F. Dry thoroughly and dust with Semesan, ½ teaspoon to 1 pound.	Plant about April 15 in the south and May 1 to 15 in the north for early crop; plant about June 1 for fall crop.
BROCCOLI Italian Green Sprouting or Calabrese	5,000				Same as cabbage except allow only 15 minutes in hot water.	
CAULIFLOWER Snowball, Super Snowball	3,000					Plant about June 1
BRUSSELS SPROUTS Long Island Improved, Perfection	5,000					
ONIONS Yellow Sweet Spanish	4,000	Allow 8 to 10 weeks from seeding to field planting.		Plant in rows about 2″ apart and about 4 plants to the inch.	Dust with Arasan or Semesan, 1 ounce or 4 teaspoons for 3 pounds seed.**	Plant April 15 to May 1 in the south and May 1 to 15 in the north.
CELERY *Self-blanching*—Golden Self-blanching, Golden Plume, Cornell 19 *Pascal (Green)*—Utah 99, Giant Pascal	15,000	4 to 5 weeks from seeding to pricking off; 4 to 6 weeks more in the flat.	Germinate seed at 60° to 70° F. Grow above 60° F. to reduce field bolting (formation of flower stalks).	Same as cabbage	Seed more than 2 years old needs no treatment. New seed suspected of being infected can be soaked in hot water for 30 minutes at 118° F. Dry and dust lightly with zinc oxide. Avoid soil that grew celery plants the previous year.	Plant from May 15 to June 15.

† Mercuric chloride or Ceresan solution should not be put in metal containers. Use glass or stoneware.

* Use yellows resistant strains if plants are to be set out in yellows infect soils.

§ Use graduated kitchen spoons for measuring seed-treating chemicals. Use an accurate tested thermometer to check hot water treatments.

‡ Soak in water at 122° F.—25 minutes for cabbage, 15 for related crops.

** Avoid soil contaminated with onion smut.

UNIVERSITY FARM, ST. PAUL 1, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Division and United States Department of Agriculture Cooperating, Paul E. Miller, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914. 5M—6-48